

Atty. Docket No. PLA31223/DBE/US
Serial No: 10/751,212

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Amendments to the Claims

Please cancel Claims 2 and 11, add new Claims 19-22, and amend the remaining claims as follows:

1. (Currently Amended) A method for packaging a semiconductor device, comprising the steps of:

- (a) forming an Au bump on a bond pad of a wafer;
- (b) dicing the wafer into a chip; and

(c) attaching the Au bump of the chip to a copper pattern embedded in a substrate to form a flip-chip bond using a thermo-pressure process, wherein the Au bump is connected directly to the bond pad of the chip and connected to the substrate through multi-stacked-metal an Ag layer and a Cu layer[[s]], and has a pillar shape.

2. (Canceled)

3. (Previously Presented) The method of claim 1, further comprising the step of

(d) encapsulating the flip-chip bond using a nonconductive epoxy after step (c).

4. (Previously Presented) The method of claim 3, further comprising the step of

(e) sawing the substrate to singulate individual packages.

5. (Previously Presented) The method of claim 1, wherein the thermo-pressure process comprises attaching the Au bump to a copper pattern in the substrate.

6. (Previously Presented) The method of claim 5, further comprising forming a plating lead on an opposite side of the substrate from the chip.

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7. (Previously Presented) The method of claim 6, wherein forming the plating lead comprises plating an AgSn layer on the copper pattern.

8. (Previously Presented) The method of claim 2, wherein the Ag layer directly contacts the Au bump.

9. (Previously Presented) The method of claim 2, wherein the Cu layer directly contacts the substrate.

10. (Currently Amended) A method for packaging a semiconductor device, comprising the steps of:

(a) forming a pillar-shaped Au bump directly on a bond pad of a wafer;
(b) dicing the wafer into a chip; and
(c) attaching the pillar-shaped Au bump of the chip to a copper pattern embedded in a substrate through a plurality of metal layers comprising an Ag layer and a Cu layer to form a flip-chip bond using a thermo-pressure process.

11. (Cancelled)

12. (Previously Presented) The method of claim 10, further comprising the step of
(d) encapsulating the flip-chip bond using a nonconductive epoxy after step
(c).

13. (Previously Presented) The method of claim 12, further comprising the step of
(c) sawing the substrate to singulate individual packages.

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14. (Previously Presented) The method of claim 10, wherein the thermo-pressure process comprises attaching the Au bump to a copper pattern in the substrate.

15. (Previously Presented) The method of claim 14, further comprising forming a plating lead on an opposite side of the substrate from the chip.

16. (Previously Presented) The method of claim 15, wherein forming the plating lead comprises plating an AgSn layer on the copper pattern.

17. (Previously Presented) The method of claim 11, wherein the Ag layer directly contacts the Au bump.

18. (Previously Presented) The method of claim 11, wherein the Cu layer directly contacts the substrate.

19. (New) The method of claim 1, wherein the substrate has a trench, and the Au bump of the chip is attached to the copper pattern in the trench.

20. (New) The method of claim 10, wherein the substrate has a trench, and the Au bump of the chip is attached to the copper pattern in the trench.

21. (New) The method of claim 1, wherein the Ag layer contacts the Au bump and the Cu layer, and the Cu layer contacts the copper pattern.

22. (New) The method of claim 10, wherein the Ag layer contacts the Au bump and the Cu layer, and the Cu layer contacts the copper pattern.